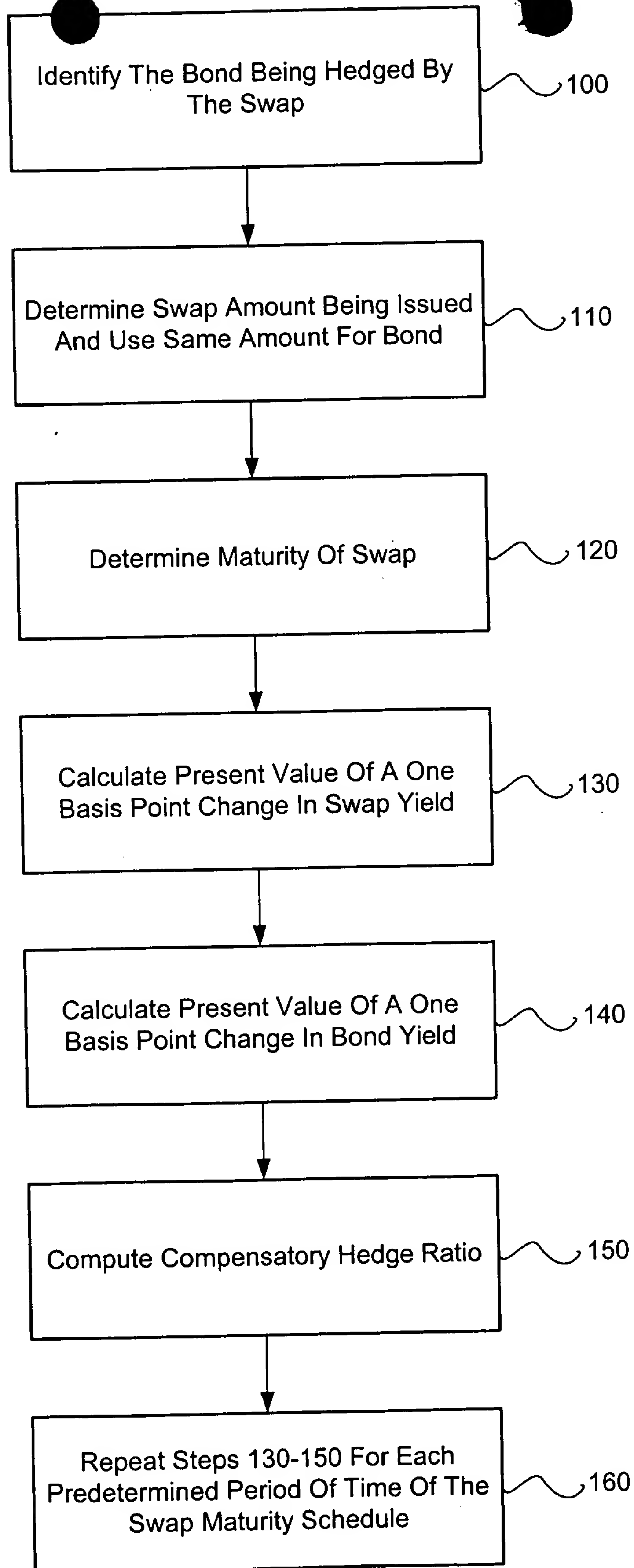


FIG. 1



bond's market value caused by an equal change in interest rates. The amount of bond being hedged will vary monthly to compensate for the difference swap and bond valuation drivers.

The goal is to establish the hedge such that an interest rate change has a similar dollar impact on the swap MTM value and the bond market value. This is best expressed as the dollar value per basis point. Four hedging examples are summarized in the next chart. The detailed calculations are in the exhibit titled "Compensatory Ratio Analysis".

210
Value of 1 BP
At Initial Date

220
Value of 1 BP
With 12 Months Remaining

Exhibit 1
4 year Swap \$36,125 \$ 9,730
4 year Bond \$36,185 \$ 9,734

Exhibit 2
5 year Swap \$46,546 \$ 9,726
7 year Bond \$65,181 \$27,313

Exhibit 3
6 year Swap \$56,887 \$ 9,726
8 year Bond \$64,013 \$23,052

Exhibit 4
7 year Swap \$54,921 \$ 9,653
10 year Bond \$71,574 \$36,005

Hedge Ratio (Bond amount being hedged as a percentage of the swap notional amount):

240
At Initial Date

250
With 12 Months Remaining

Exhibit 1 99.8% (\$36,125 / \$36,185) 100.0% (\$9,730 / \$9,734)
Exhibit 2 71.4% (\$46,546 / \$65,181) 35.6% (\$27,313 / \$9,726)
Exhibit 3 88.9% (\$56,887 / \$64,013) 42.2% (\$9,726 / \$23,052)
Exhibit 4 76.7% (\$54,921 / \$71,574) 26.8% (\$9,653 / \$36,005)

The hedge ratios are logical. An interest rate change has a greater dollar impact on a longer maturity bond. So, a lesser bond notional amount can be hedged by a given swap amount when the bond maturity is longer.

At the "initial date", we can use the hedge ratios to determine the bond notional being hedged. For example, a \$100 million swap in Exhibit 3 would hedge \$88.9 million bond notional. This should generate a "perfect" matching of swap and bond value volatility.

However, note the changing relationship when there is a maturity mismatch. Exhibit 2 shows an initially moderate mismatch (7 year bond versus 5 year swap gives a maturity ratio of 1.4 to 1). By the end of year 4, the maturity mismatch is wide (3 year bond versus a 1 year swap gives a maturity ratio of 3 to 1). We therefore need to vary the percentage hedging relationship between the bond and swap to maintain similar amounts

FIG.2

EXHIBIT 1 DETAILS

WestLB swap #16 (maturing Feb 13-03) vs Cat Bond 6.00% maturing Feb-03

Calculation of the Compensatory Hedge Ratio

Swap				Bond				Compensatory Hedge Ratio
No. of Months	Swap PV of Profit	Swap V of Adj. Profit	PV of 1 BP	No. of Months	Bond Yield	PV of 1 BP		
4-Jan-99				48				
feb	\$0	-\$36,125	\$36,125	47	\$101,813,328	\$101,777,143	\$36,185	99.8%
mar	\$0	-\$35,445	\$35,445	46	\$101,779,464	\$101,743,961	\$35,502	99.8%
apr	\$0	-\$34,762	\$34,762	45	\$101,745,444	\$101,710,627	\$34,817	99.8%
may	\$0	-\$34,076	\$34,076	44	\$101,711,269	\$101,677,140	\$34,129	99.8%
jun	\$0	-\$33,387	\$33,387	43	\$101,676,937	\$101,643,499	\$33,438	99.8%
jul	\$0	-\$32,695	\$32,695	42	\$101,642,448	\$101,609,704	\$32,744	99.9%
aug	\$0	-\$32,000	\$32,000	41	\$101,607,801	\$101,575,754	\$32,047	99.9%
sep	\$0	-\$31,303	\$31,303	40	\$101,572,995	\$101,541,648	\$31,347	99.9%
oct	\$0	-\$30,602	\$30,602	39	\$101,538,030	\$101,507,385	\$30,645	99.9%
nov	\$0	-\$29,898	\$29,898	38	\$101,502,905	\$101,472,966	\$29,939	99.9%
dec	\$0	-\$29,192	\$29,192	37	\$101,467,619	\$101,438,389	\$29,230	99.9%
Jan 2000	\$0	-\$28,482	\$28,482	36	\$101,432,172	\$101,403,653	\$28,519	99.9%
feb	\$0	-\$27,769	\$27,769	35	\$101,396,562	\$101,368,757	\$27,805	99.9%
mar	\$0	-\$27,054	\$27,054	34	\$101,360,789	\$101,333,702	\$27,087	99.9%
apr	\$0	-\$26,335	\$26,335	33	\$101,324,853	\$101,298,486	\$26,367	99.9%
may	\$0	-\$25,613	\$25,613	32	\$101,288,752	\$101,263,108	\$25,643	99.9%
jun	\$0	-\$24,888	\$24,888	31	\$101,252,485	\$101,227,569	\$24,917	99.9%
jul	\$0	-\$24,161	\$24,161	30	\$101,216,053	\$101,191,866	\$24,187	99.9%
aug	\$0	-\$23,430	\$23,430	29	\$101,179,454	\$101,155,999	\$23,455	99.9%
sep	\$0	-\$22,696	\$22,696	28	\$101,142,687	\$101,119,968	\$22,719	99.9%
oct	\$0	-\$21,958	\$21,958	27	\$101,105,752	\$101,083,771	\$21,980	99.9%
nov	\$0	-\$21,218	\$21,218	26	\$101,068,648	\$101,047,409	\$21,239	99.9%
dec	\$0	-\$20,475	\$20,475	25	\$101,031,374	\$101,010,880	\$20,494	99.9%
Jan 2001	\$0	-\$19,728	\$19,728	24	\$100,993,929	\$100,974,183	\$19,746	99.9%
feb	\$0	-\$18,978	\$18,978	23	\$100,956,313	\$100,937,318	\$18,995	99.9%
mar	\$0	-\$18,226	\$18,226	22	\$100,918,525	\$100,900,284	\$18,241	99.9%
apr	\$0	-\$17,469	\$17,469	21	\$100,880,563	\$100,863,080	\$17,483	99.9%
may	\$0	-\$16,710	\$16,710	20	\$100,842,428	\$100,825,705	\$16,723	99.9%
jun	\$0	-\$15,948	\$15,948	19	\$100,804,118	\$100,788,159	\$15,959	99.9%
jul	\$0	-\$15,182	\$15,182	18	\$100,765,633	\$100,750,441	\$15,192	99.9%
aug	\$0	-\$14,413	\$14,413	17	\$100,726,972	\$100,712,549	\$14,422	99.9%
sep	\$0	-\$13,641	\$13,641	16	\$100,688,133	\$100,674,484	\$13,649	99.9%
oct	\$0	-\$12,865	\$12,865	15	\$100,649,117	\$100,636,245	\$12,873	99.9%
nov	\$0	-\$12,086	\$12,086	14	\$100,609,922	\$100,597,829	\$12,093	99.9%
dec	\$0	-\$11,304	\$11,304	13	\$100,570,548	\$100,559,238	\$11,310	99.9%
Jan 2002	\$0	-\$10,519	\$10,519	12	\$100,530,994	\$100,520,470	\$10,524	100.0%
feb	\$0	-\$9,730	\$9,730	11	\$100,491,258	\$100,481,524	\$9,734	100.0%
mar	\$0	-\$8,938	\$8,938	10	\$100,451,341	\$100,442,399	\$8,942	100.0%
apr	\$0	-\$8,142	\$8,142	9	\$100,411,240	\$100,403,095	\$8,146	100.0%
may	\$0	-\$7,344	\$7,344	8	\$100,370,956	\$100,363,610	\$7,346	100.0%
jun	\$0	-\$6,541	\$6,541	7	\$100,330,488	\$100,323,945	\$6,543	100.0%
jul	\$0	-\$5,736	\$5,736	6	\$100,289,835	\$100,284,097	\$5,737	100.0%
aug	\$0	-\$4,927	\$4,927	5	\$100,248,995	\$100,244,067	\$4,928	100.0%
sep	\$0	-\$4,114	\$4,114	4	\$100,207,968	\$100,203,853	\$4,115	100.0%
oct	\$0	-\$3,298	\$3,298	3	\$100,166,754	\$100,163,455	\$3,299	100.0%
nov	\$0	-\$2,479	\$2,479	2	\$100,125,350	\$100,122,871	\$2,479	100.0%
dec	\$0	-\$1,656	\$1,656	1	\$100,083,758	\$100,082,101	\$1,656	100.0%
Jan 2003	\$0	-\$830	\$830	0	\$100,041,974	\$100,041,145	\$830	100.0%
								#DIV/0!

FIG. 3

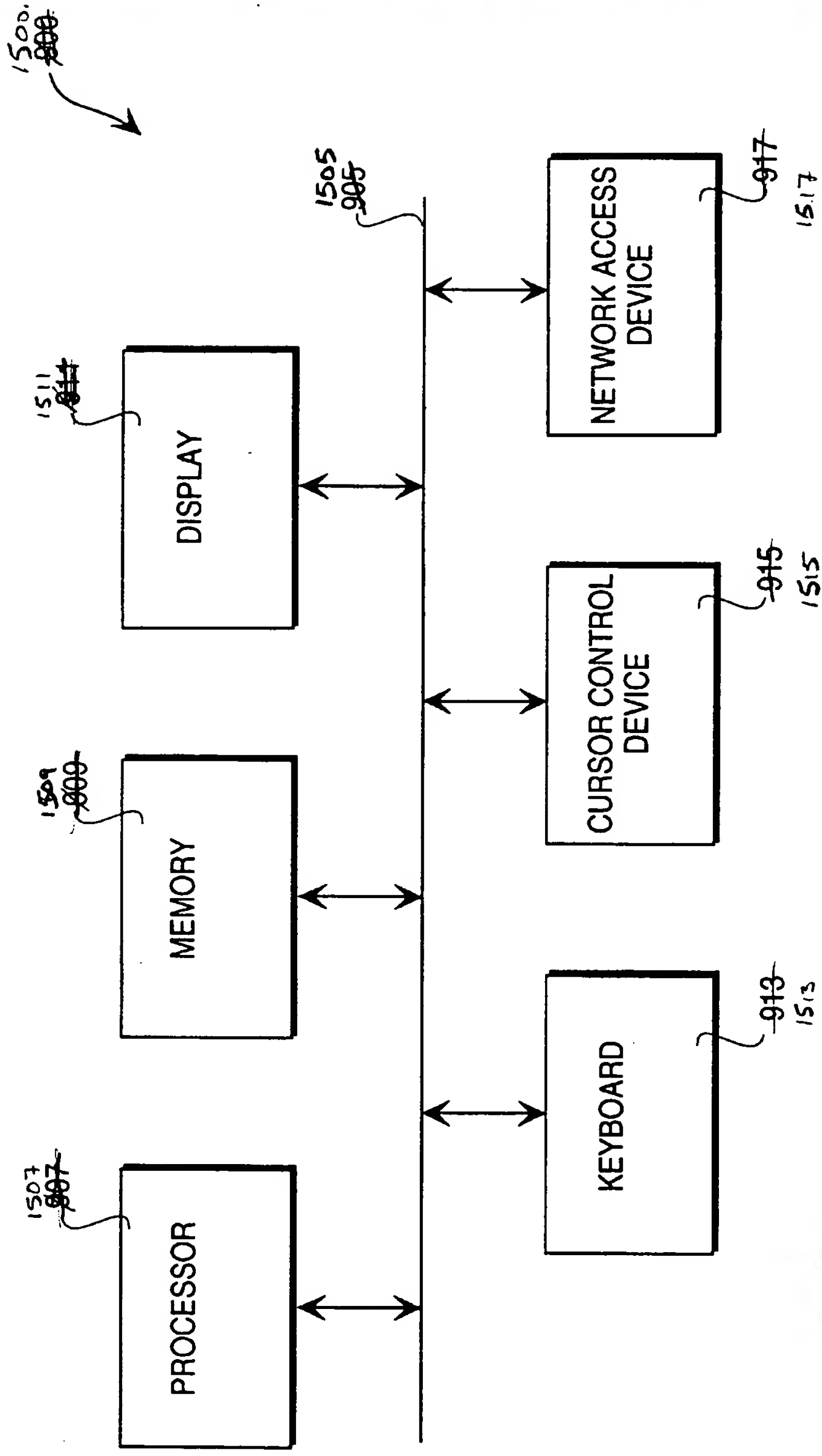


FIG. 15

EXHIBIT 4 DETAILS

Exhibit 2		24	25	26	27	28				
	Bond Value Mthly Change	Compensatory Hedge Ratio	X		aver. x Life-to-date Hedged Bond MTM mthly change (24*25)	Y Swap MTM Mthly Change	Ineffective Portion of Swap MTM (26-27) Y minus X	Square of Total Deviation SSI	Square of Unexplained Dev (ineffect.portion) SSE	r ²
			Hedged Bond MTM mthly change	Hedged Bond MTM mthly change						
30-Sep-99	\$0.00	76.7%	0	0	0	\$0	0	0	0	75.2%
	\$600,462.93	76.4%	458,935	229,467	229,467	\$333,504	125,431	63,478,928,851	15,732,832,515	37.7%
	-\$1,503,626.62	76.1%	-1,144,583	-228,549	-228,549	-\$598,060	-546,523	504,676,712,291	298,687,349,311	67.9%
dec	-\$1,273,266.40	75.8%	-965,233	-412,720	-412,720	-\$1,559,611	594,378	2,076,897,321,496	353,285,391,893	81.6%
	-\$2,320,774.27	75.5%	-1,751,915	-680,559	-680,559	-\$2,094,372	342,456	4,269,888,798,888	117,276,296,651	86.2%
mar	\$636,938.08	75.2%	478,747	-487,342	-487,342	\$537,335	-58,588	5,705,816,121,978	3,432,549,873	88.2%
	\$1,027,406.66	74.8%	768,845	-307,886	-307,886	\$602,078	166,767	6,891,153,721,126	27,811,094,331	88.2%
	-\$871,257.52	74.5%	-649,066	-350,534	-350,534	-\$634,859	-14,207	6,931,508,772,406	201,837,756	89.0%
	-\$1,501,434.31	74.2%	-1,113,399	-435,297	-435,297	-\$1,165,891	52,492	7,419,392,361,062	2,755,374,621	93.5%
Jun	\$2,472,573.07	73.8%	1,824,951	-209,272	-209,272	\$1,963,578	-138,627	12,899,803,490,559	19,217,411,768	93.5%
	\$104,775.02	73.5%	76,961	-183,251	-183,251	\$213,760	-136,799	13,091,439,955,855	18,713,870,414	94.3%
	\$1,736,237.04	73.1%	1,269,070	-62,224	-62,224	\$1,215,951	53,118	14,979,915,613,565	2,821,573,034	94.1%
sep	\$624,273.86	72.7%	454,010	-22,514	-22,514	\$705,980	-251,971	15,564,479,116,344	63,489,285,989	94.1%
	\$267,692.47	72.4%	193,681	-7,071	-7,071	\$194,508	-826	15,614,017,438,151	682,853	

FIG. 14

Swap Benchmarking for Swap#10.xls